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Ocean and Resources Engineering

M.S. PLAN B

PRESENTATION & DEFENSE

MONDAY, DECEMBER 11, 2017

HOLMES HALL 400

2:00 pm (seating limited)

**Assessment of Delft3D as a Modeling Tool at
Kaanapali Beach**

Abstract:

Kaanapali Beach is located on West Maui and experiences very dynamic beach morphologic changes associated with longshore dominant sediment transport in some regions and cross-shore dominant transport in other regions. The Delft3D modeling suite was utilized to assess its performance to simulate sediment transport and morphologic changes along a portion of the beach which experiences more cross-shore dominant transport and is less predictable from season to season. The SWAN spectral wave model used in Delft3D shows reasonable agreement with ADCP observations of wave heights for the winter months while only moderate agreement was observed for the summer months. Simulated beach profile change over the modeled time frame was able to reasonably capture the trend of beach face migration (accretion or erosion) while the modeled beach profile shape was not well simulated above the water line. The modeled shoreline showed good agreement with beach survey data over the month and half simulation. The Delft3D modeling suite may be a useful tool in simulating future shoreline migration patterns on time scales of years to decades with the use of morphological scaling techniques and may be applied to account for future sea level rise.